

Noise Element

A. Noise and Land Use Compatibility

Goal :

- ◆ Consider existing and future noise levels when making land use planning decisions to minimize people's exposure to excessive noise.

Discussion:

The Noise Element influences Land Use Element policies since excessive noise affects land uses, specifically, the quality of life of people working and living in the City. The planning of future noise-sensitive land uses should have a sufficient spatial separation or incorporate site design and construction techniques to ensure compatibility with noise-generating uses. Noise-sensitive land uses include, but are not necessarily limited to residential uses, hospitals, nursing facilities, intermediate care facilities, child educational facilities, libraries, museums, ~~places of worship and;~~ child care facilities, ~~and certain types of passive recreational parks and open space.~~

The City uses the Land Use - Noise Compatibility Guidelines shown on Table NE-3 for evaluating land use noise compatibility when reviewing proposed land use development projects. The land uses described provide examples of uses under each land use category. A more complete listing of use categories and subcategories is found in the Land Development Code Chapter 13, in the use regulation tables. A “compatible” land use indicates that standard construction methods will attenuate exterior noise to an acceptable indoor noise level and people can carry out outdoor activities with minimal noise interference. Evaluation of land use that falls into the “conditionally compatible” noise environment should have an acoustical study. In general, an acoustical study should include, but is not limited to the analysis listed on Table NE-4, Acoustical Study Guidelines, with consideration of the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with speech, sleep, or other activities characteristic of the land use. For land uses indicated as conditionally compatible, structures must be capable of attenuating exterior noise to the indoor noise level as shown on Table NE-3. For land uses indicated as incompatible, new construction should generally not be undertaken. Due to severe noise interference, outdoor activities are generally unacceptable and for structures, extensive mitigation techniques are required to make the indoor environment acceptable. For uses related to motor vehicle traffic noise, refer to Section B for additional guidance. For uses affected by aircraft noise, refer to Section D, since noise compatibility policies in the Airport Land Use Compatibility Plans could be more or less restrictive for uses affected by aircraft noise than shown on Table NE-3. Refer to Section I for a discussion of typical noise attenuation measures.

Policies

- NE-A.1. Separate excessive noise-generating uses from residential and other noise-sensitive land uses with a sufficient spatial buffer of less sensitive uses.

- NE-A.2. Assure the appropriateness of proposed developments relative to existing and future noise levels by consulting the guidelines for noise-compatible land use (shown on Table NE-3) to minimize the effects on noise-sensitive land uses.
- NE-A.3. Limit future residential and other noise-sensitive land uses in areas exposed to high levels of noise.
- NE-A.4. Require an acoustical study consistent with Acoustical Study Guidelines (Table NE-4) for proposed developments in areas where the existing or future noise level exceeds or would exceed the “compatible” noise level thresholds as indicated on the Land Use - Noise Compatibility Guidelines (Table NE-3), so that noise mitigation measures can be included in the project design to meet the noise guidelines.
- NE-A.5. Prepare noise studies to address existing and future noise levels from noise sources that are specific to a community when updating community plans.

TABLE NE-3 Land Use - Noise Compatibility Guidelines

Land Use Category	Exterior Noise Exposure (dBA CNEL)			
	60	65	70	75
Open Space and Parks and Recreational				
Community & Neighborhood Parks; Passive Recreation				
Regional Parks; Outdoor Spectator Sports, Golf Courses; Athletic Fields; Outdoor Spectator Sports, Water Recreational Facilities; Horse Stables; Park Maint. Facilities				
<u>Parks, Active and Passive Recreation</u>				
<u>Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities</u>				
Agricultural				
Crop Raising & Farming; Community Gardens, -Aquaculture, Dairies; Horticulture Nurseries & Greenhouses; Animal Raising, Maintain & Keeping; Commercial Stables				
Residential				
Single Dwelling Units; Mobile Homes; Senior Housing		45		
Multiple Dwelling Units; Mixed Use Commercial/Residential; Live Work; Group Living Accommodations *For uses affected by aircraft noise, refer to Policies NE-D.2. & NE-D.3.		45	45*	
Institutional				
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12 Educational Facilities; Libraries; Museums; -Places of Worship; Child Care Facilities		45		
Educational Facilities including Vocational/Trade Schools and -or Professional Educational Facilities; Higher Education Institution Facilities (Community or Junior Colleges, Colleges and -or Universities)		45	45	
Cemeteries				
Retail Sales				

Land Use Category	Exterior Noise Exposure (dBA CNEL)				
	60	65	70	75	
Building Supplies/Equipment; Food, Beverages & Groceries; Pets & Pet Supplies; Sundries, Pharmaceutical, & Convenience Sales; Wearing Apparel & Accessories			50	50	
<i>Commercial Services</i>					
Building Services; Business Support; Eating & Drinking; Financial Institutions; Maintenance & Repair, Personal Services; Assembly & Entertainment (includes public and religious assembly); Radio & Television Studios; Golf Course Support			50	50	
Visitor Accommodations		45	45	45	
<i>Offices</i>					
Business & Professional; Government; Medical, Dental & Health Practitioner; Regional & Corporate Headquarters			50	50	
<i>Vehicle and Vehicular Equipment Sales and Services Use</i>					
Commercial or Personal Vehicle Repair & Maintenance; Commercial or Personal Vehicle Sales & Rentals; Vehicle Equipment & Supplies Sales & Rentals; Vehicle Parking					
<i>Wholesale, Distribution, Storage Use Category</i>					
Equipment & Materials Storage Yards; Moving & Storage Facilities; Warehouse; Wholesale Distribution					
<i>Industrial</i>					
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking & Transportation Terminals; Mining & Extractive Industries					
Research & Development				50	
	Compatible	Indoor Uses	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level. Refer to Section I.		
		Outdoor Uses	Activities associated with the land use may be carried out.		
45, 50	Conditionally Compatible	Indoor Uses	Building structure must attenuate exterior noise to the indoor noise level indicated by the number (45 or 50) for occupied areas. Refer to Section I.		
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable. Refer to Section I.		
	Incompatible	Indoor Uses	New construction should not be undertaken.		
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.		

TABLE NE-4 Acoustical Study Guidelines

An acoustical study should include, but is not limited to the following analysis:

- Provide noise level measurements to describe existing local conditions and the predominant noise sources.

- Measure existing single event noise levels (SENEL, SEL, or Time Above) within airport influence areas.

- Estimate existing and projected noise levels (CNEL) and compare them to levels on Table NE-32. For parks, may consider motor vehicle traffic noise measurements during the one-hour period where the worst-case traffic noise

levels are expected to occur from dawn to dusk at a park.

Recommend appropriate mitigation measures to achieve acceptable noise levels on Table NE-32.

Estimate noise exposure levels with recommended mitigation measures.

Describe a post-project assessment to evaluate the effectiveness of the proposed mitigation measures.

B. Motor Vehicle Traffic Noise

Goal :

- ◆ Minimal excessive motor vehicle traffic noise on residential and other noise-sensitive land uses.

Discussion:

Motor vehicle traffic noise is a major contributor of noise within the City. Excessive noise levels along arterial roads, interstate freeways, and state highways affect much of the urban environment. Traffic noise level is dependent upon traffic volume, speed, flow, vehicle mix, pavement type and condition, the use of barriers, as well as distance to the receptor.

Local roadway design features and traffic management and calming techniques can minimize noise from traffic speed and frequent vehicle acceleration and deceleration, and innovative roadway paving material can further reduce traffic noise. Vehicles equipped with a properly functioning muffler system help to limit excessive exhaust noise. Future use of hybrid transit buses could help to reduce noise along mixed-use transit corridors.

At higher speeds, typically on freeways, highways and primary arterials, the noise from tire/pavement interaction can be greater than from vehicle exhaust and engine noise. The use of lower noise paving surfaces can reduce tire/pavement interaction noise. For noise-sensitive land uses adjacent to freeways and highways, these uses should be buffered from excessive noise levels by intervening, less sensitive, industrial-commercial uses or shielded by sound walls or landscaped berms. The City can, however, influence daily traffic volumes and reduce peak-hour traffic by promoting alternative transportation modes and integration of mixed-use infill development. The peak hour traffic may or may not be the worst-case noise levels since higher traffic volumes can lead to higher congestion and lower operating speeds. The worst-case noise levels may occur in hours with lower volumes and higher speeds.

Although not generally considered compatible, the City conditionally allows multiple unit and mixed-use residential uses up to 75 dBA CNEL in areas affected primarily by motor vehicle traffic noise with existing residential uses. Any future residential use above the 70 dBA CNEL must include noise attenuation measures to ensure an interior noise level of 45 dBA CNEL and be located in an area where a community plan allows multiple unit and mixed-use residential uses.

Policies

- NE-B.1. Encourage noise-compatible land uses and site planning adjoining existing and future highways and freeways.
- NE-B.2. Consider traffic calming design, traffic control measures, and low-noise pavement surfaces that minimize motor vehicle traffic noise (see also Mobility Element, Policy ME-C.5 regarding traffic calming).
- NE-B.3. Require noise reducing site design, and/or traffic control measures for new development in areas of high noise to ensure that the mitigated levels meet acceptable decibel limits.
- NE-B.4. Require new development to provide facilities which support the use of alternative transportation modes such as walking, bicycling, carpooling and, where applicable, transit to reduce peak-hour traffic.
- NE-B.5. Designate local truck routes to reduce truck traffic in noise-sensitive land uses areas.
- NE-B.6. Work with Caltrans to landscape freeway-highway rights-of-way buffers and install low noise pavement surfaces, berms, and noise barriers to mitigate state freeway and highway traffic noise.
- NE-B.7. Promote the use of berms, landscaping, setbacks, and architectural design where appropriate and effective, rather than conventional wall barriers to enhance aesthetics.
- NE-B.8. Enforce the state vehicle code to ensure that motor vehicles are equipped with a functioning muffler and are not producing excessive noise levels.
- NE-B.9. Locate parks in quieter areas where possible, and consider noise exposure levels as a part of the park planning and design process. When parks are located in noisier areas, seek to reduce exposure through site planning, including locating the most noise sensitive uses, such as children's play areas and picnic tables, in the quieter areas of the site; and in accordance with the other policies of this section.

C. Trolley and Train Noise

Goal:

- ◆ Minimal excessive fixed rail-related noise on residential and other noise-sensitive land uses.

Discussion:

Daily traffic from passenger and freight train and trolley operations produces noise that may disrupt adjacent noise-sensitive uses. Trains can generate high, yet relatively brief, intermittent noise events. The interaction of the steel wheels and rails is a major component of train noise. Factors that influence the overall rail noise include the train speed, train horns, type of engine, track conditions, use of concrete cross ties and welded track, the intermittent nature of train events, time of day, and sound walls or other barriers. When operating in residential areas, trains are required to travel at a reduced speed to minimize noise.

Federal regulations require trains to sound their horns at all roadway-rail grade crossings and the warning sound of train horns is a common sound experienced by communities near the rail corridor. In an effort to minimize excess train horn noise, the federal government allows local jurisdictions to establish train horn “quiet zones.” This requires the implementation of supplementary and alternative safety measures to compensate for the loss of the train horn usage.

The state is planning for high-speed rail service that would connect the San Diego region to other regions in the state. Air turbulence noise generated from high-speed train traffic may affect noise-sensitive uses along the potential rail corridors.

Policies

- NE-C.1. Use site planning to help minimize exposure of noise sensitive uses to rail corridor and trolley line noise.
- NE-C.2. Work with the San Diego Association of Governments (SANDAG), Caltrans, Metropolitan Transit System (MTS), California High-Speed Rail Authority, and passenger and freight rail operators to install noise attenuation features to minimize impacts to adjacent residential or other noise-sensitive uses. Such features include rail and wheel maintenance, grade separation along existing and future rail corridors, and other means.
- NE-C.3. Establish train horn “quiet zones” consistent with the federal regulations, where applicable.
- NE-C.4. Work with SANDAG, Caltrans, MTS, and passenger and freight rail operators to install grade separation at existing roadway-rail grade crossings as a noise and safety measure.

D. Aircraft Noise

Goal:

- ◆ Minimal excessive aircraft-related noise on residential and other noise-sensitive land uses.

Discussion:

Aircraft noise primarily affects communities within an airport influence area. The noise impact or the perceived annoyance depends upon the noise volume, length of the noise event and the time of day. In general, aircraft noise varies with the type and size of the aircraft, the power the

aircraft is using, and the altitude or distance of the aircraft from the receptor. Another variable affecting the overall impact of noise is a perceived increase in aircraft noise at night. The City evaluates the potential aircraft noise impacts on noise sensitive land uses when considering the siting or expansion of airports, heliports, and helistops/helipads as addressed in the Land Use Element.

Aircraft noise is one of the factors that the state-required Airport Land Use Compatibility Plans addresses with established policies for land use compatibility for each public use airport and military air installation. The Airport Land Use Compatibility Plans, as discussed in the Land Use Element, incorporates the California Airport Noise Standards that establishes the 65-dBA CNEL as the boundary for the normally acceptable level of aircraft noise for noise-sensitive land uses including residential uses near airports. The land use noise compatibility policies in the compatibility plans could be more or less restrictive for uses affected by aircraft noise than shown on Table NE-3. The City implements the noise policies contained in the compatibility plans through development regulations and zoning ordinances in the Land Development Code.

Since CNEL represents averaged noise exposure over a 24-hour period, there can be single event noise levels that may exceed the reported CNEL. Although there is no single event standard for aircraft noise exposure, the measurement of the duration and maximum noise levels during single event noises can assist in evaluating potential affects on future noise sensitive land uses.

Uses that have outdoor areas exposed to high levels of aircraft noise cannot mitigate noise levels to an acceptable level due to overflights. Noise-sensitive uses that have outdoor areas used daily by the occupants, such as schools for children and child care centers, are incompatible in areas that exceed the 65 dBA CNEL since mitigation measures cannot reduce exposure to outdoor play areas from prolonged periods of high aircraft noise.

San Diego International Airport (SDIA)

San Diego International Airport (SDIA) at Lindbergh Field is the commercial air carrier airport serving the region located in the City's urban center and is adjacent to downtown. Although various industrial, commercial, and residential uses surround the airport, residential is the primary use and the most affected by the airport. Primarily commercial air carrier aircraft with a limited number of general aviation corporate jet aircraft use SDIA. Normally, aircraft arrive from the east and depart to the west. Noise from aircraft taking off and climbing affect more areas west or adjacent to SDIA, whereas noise from aircraft approaching and landing affects fewer areas east of the airport. Commercial aircraft noise has been declining due to advances in engine technology. However, noise will affect more areas as operations at SDIA increase in the future.

The SDIA requires a variance from the California Airport Noise Standards in order to operate with noise in excess of the 65 dBA CNEL affecting residential uses. As the airport operator, the San Diego County Regional Airport Authority has implemented monitoring and mitigation measures to minimize aircraft noise affecting residential areas. The SDIA prohibits most late night takeoffs to help limit noise impacts. As a mitigation measure, the Quieter Home Program retrofits affected homes to reduce interior noise levels to an acceptable level. The variance requires that the Airport

Authority obtain aviation easements for new residential uses and other noise sensitive uses above the 60 dBA CNEL and for participating homes in the Quieter Home Program.

Communities surrounding SDIA contain existing and planned areas for residential uses including higher-density residential uses. Higher-density residential structures use construction materials that can mitigate higher exterior noise levels to acceptable levels. Higher-density residential uses also contain limited outdoor areas, which limit the length of outdoor exposure to higher noise levels. Given the geographic extent of the areas above the 65 dBA CNEL within the SDIA airport influence area and the desire to maintain and enhance the character of these neighborhoods, the City conditionally allows future single unit, multiple unit, and mixed-use residential uses in the areas above the 65 dBA CNEL. Although not generally considered compatible with aircraft noise, the City conditionally allows multiple unit and mixed-use residential uses above the 65 dBA CNEL only in areas with existing residential uses, and single unit residential uses only on existing single unit lots. Any future residential use above the 65 dBA CNEL must include noise attenuation measures to ensure an interior noise level of 45 dBA CNEL, provision of an aviation easement, and be located in an area where a community plan and the Airport Land Use Compatibility Plan allow residential uses.

Marine Corps Air Station (MCAS) Miramar

MCAS Miramar operates a mixture of jet fighter, transport, and helicopter aircraft. Noise from military air installations presents different noise issues compared to civilian airports. Military readiness requires constant training. Aircraft training includes touch and goes (takeoffs and landings with a close-in circuit around the airport), aircraft carrier simulated landings, practice instrument approaches, and normal departures to and arrivals from other installations or training areas. As a result, noise can affect more areas than from civilian airports. Helicopter noise can be an annoyance since helicopter noise events last longer and pulsate.

As indicated by the Air Installations Compatibility Use Zones (AICUZ) study, adjacent industrial and commercial uses are compatible with MCAS Miramar's noise levels. Noise from MCAS Miramar affects residential areas in surrounding communities. To minimize aircraft noise impact on residential areas, the Marine Corps implements noise abatement and monitoring programs as described in the AICUZ study.

Brown Field and Montgomery Field

Noise levels from Brown Field and Montgomery Field municipal airports are not as extensive as the noise levels from SDIA and MCAS Miramar. Typically, the smaller general aviation aircraft, both propeller and jet aircraft operate from Brown and Montgomery Fields.

Due to the length of its runways, Montgomery Field cannot accommodate all types of general aviation aircraft. Noise-compatible commercial and industrial uses are adjacent to the airport. Aircraft noise affects residential areas in surrounding communities. To minimize the impact on surrounding residential areas, Montgomery Field has a noise-monitoring program to assess aircraft noise and regulations, including a nighttime noise limits and a weight limit for aircraft using the airport.

General aviation propeller and jet aircraft, as well as law enforcement and military aircraft, use Brown Field. Noise-compatible open space and industrial uses are primarily adjacent to Brown Field. Aircraft noise affects residential uses to the west of the airport.

Airports Outside of the City

Aircraft noise from airports outside of the City is also less extensive than noise from SDIA and MCAS Miramar. Military aircraft operations at Naval Air Station (NAS) North Island and Naval Outlying Field (NOLF) Imperial Beach primarily use the airspace over the Pacific Ocean and the San Diego Bay. The primary traffic pattern for helicopters training at NOLF Imperial Beach is along the Tijuana River Valley and then offshore. Overflight noise from general aviation aircraft operating at Gillespie Field has the potential to affect residential areas in the City west of the airport. Aircraft noise from commercial air carrier operations at the Tijuana International Airport in Mexico primarily affect open space and industrial uses adjacent to the international border in the Otay Mesa area.

Helicopter Operations

The noise levels associated with operations at a heliport or helipad/helistop depend upon the flight path, the helicopter types used, the number of operations, and the time of day. Helicopter activity from military helicopters, private, police, fire/rescue, medical, and news/traffic monitoring helicopters contribute to the general noise environment in the City. In particular, low-flying helicopters are a source of noise complaints in the City, especially at night. Within the City, most helicopters operate from existing airports. Emergency medical or public safety helicopters primarily use the few certified off-airport heliports.

Policies

- NE-D.1. Encourage noise-compatible land use within airport influence areas in accordance with federal and state noise standards and guidelines.
- NE-D.2. Limit future residential uses within airport influence areas to the 65 dBA CNEL airport noise contour, except for multiple-unit, mixed-use, and live work residential uses within the San Diego International Airport influence area in areas with existing residential uses and where a community plan and the Airport Land Use Compatibility Plan allow future residential uses.
- NE-D.3. Ensure that future multiple-unit, mixed-use, and live work residential uses within the San Diego International Airport influence area that are located greater than the 65 dBA CNEL airport noise contour are located in areas with existing residential uses and where a community plan and Airport Land Use Compatibility Plan allow future residential uses.
 - a. Limit the amount of outdoor areas subject to exposure above the 65 dBA CNEL; and;
 - b. Provide noise attenuation to ensure an interior noise level that does not exceed 45 dBA CNEL.

- NE-D.4. Discourage outdoor uses in areas where people could be exposed to prolonged periods of high aircraft noise levels greater than the 65 dBA CNEL airport noise contour.
- NE-D.5. Minimize excessive aircraft noise from aircraft operating at Montgomery Field to surrounding residential areas.
 - a. Implement a noise-monitoring program to assess aircraft noise.
 - b. Implement nighttime aircraft noise limits and a weight limit for aircraft using the airport.
- NE-D.6. Encourage civilian and military airport operators, to the extent practical, to monitor aircraft noise, implement noise-reducing operation measures, and promote pilot awareness of where aircraft noise affects noise-sensitive land uses.
- NE-D.7. Limit future uses within airport influence areas when the noise policies in the compatibility plans are more restrictive for uses affected by aircraft noise than shown on Table NE-3.